



Hollow Fiber Membrane Filter

Characteristics

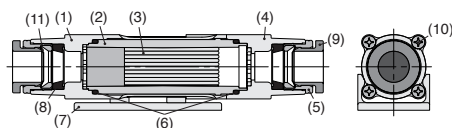
- By adopting the hollow fiber to the filter, the filtration accuracy of 0.01μm and, trapping efficiency of 99.99% has been realized.
- The small size and light weight filter handling the large flow.
- The main plastic body covering the filter case has added a blast shelter function.
- Oil-impervious specification with stainless steel body is adopted as standard model.

Specifications

Model	MFU50-44	MFU50-66	MFU50-88	MFU100-66	MFU100-88	MFU100-1010
Max. operating flow (*1)	Min. 50/min[ANR]			Min. 100/min[ANR]		
Membrane area	107cm ²			215cm ²		
Fluid medium	Air, Nitrogen					
Max. operating pressure (*2)	145psi (1.0MPa)					
Operating temp. range	41 ~ 122°F (5 ~ 50°C)					
Filtering accuracy (*3)	0.01μm (Trapping efficiency: 99.99%)					
Proof pressure	218psi (1.5MPa)					
Proof differential pressure	36psi (0.25MPa)					
Note:	With a blast shelter Oil-impervious specification					

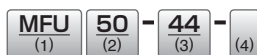
- *1. The primary pressure: Pressure loss at 0.7MPa; the air flow would become that of at 0.03MPa.
 *2. For use and applications in other thermal range than specified here, please refer to the "Chart of Operating temperature & Max. Operating temperature" in which the product is used. When fluid medium is nitrogen, the max. pressure range is 0.99MPa at 20°C.
 *3. The data is relevant to our testing conditions.
 *4. Please consult Pisco for a gas other than above mentioned.

Construction



No	Parts	Material
(1)	Casing 1	PBT
(2)	Filter case	PA
(3)	Hollow fiber membrane	PP
(4)	Casing 2	PBT
(5)	Guide ring	SUS
(6)	O-ring	FKM
(7)	Holder	POM
(8)	Elastic sleeve	FKM
(9)	Release ring	PBT
(10)	Screws	SUS
(11)	Lock claws	stainless steel

Model Designation (Example)



- (1) Hollow fiber membrane filter union type
 (2) Max. service flow

Code	50	100
Max. service flow	50/min[ANR]	100/min[ANR]

- (3) Input & Output tube size

Code	44	66	88	1010
Tube dia. (mm)	ø4	ø6	ø8	ø10

- *1. Code: 44 can be selected only for Max. service flow of 50/min[ANR].
 *2. Code: 1010 can be selected only for Max. service flow of 100/min[ANR].

- (4) Holder option

NH: without Holder
 No code: with Holder

▶ In case of ordering, please apply Model code in the following chart.



The products listed in this page are ECO-friendly products.
 * Please refer to page 4 for the details of ECO-friendly products.

Model
MFU(2)-øD-øD-(4)
Hollow fiber: MFU50-44-(4)
Union type: MFU50-66-(4)
MFU50-88-(4)
MFU100-66-(4)
MFU100-88-(4)
MFU100-1010-(4)



Cautions

- *1. For (4), please select a holder option.
 *2. The model with low sales average may be build to order production. For details, please contact Pisco sales office or sales representative.



Package specification

1 pc. in a bag

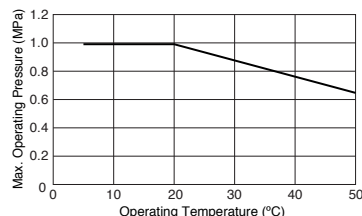
Detailed Safety Instructions

Before using the PISCO device, be sure to read the "Safety Instructions", "Common Safety Instructions for Products Listed in This Manual" on page 13 to 15 and "Common Safety Instructions for Controllers" on page 64.

- ⚠Warnings:
- Make sure that the hollow fiber membrane filters are regularly maintained. When the regular maintenance service is spoiled, the filter performance can deteriorate due to clogging and may result in malfunction. The filter must be replaced with a new one after one year of usage or when the pressure loss of 0.1MPa or more is observed.
 - The product shall not be used or stocked in the outdoors or where the direct sunlight hits. The fiber and potting material can be deteriorated severely by the direct sunlight and ultraviolet light.
 - The blast shelter function of this product is for preventing scattering of the filter casement (when exploded), not for preventing the explosion of the casement itself.
 - Make sure to avoid contact with or the ambience of following fluids and substances: corrosive gas, organic solvent, chemicals, water (vapor, etc.)
 - The max. service pressure of this product depends on the ambient temperature. Make sure to use the product within the range as specified in the "Chart of Operating temperature & Max. Operating Temperature".
 - Please do not give excessive vibration or shock by falling. Those cause breakage or performance deterioration of the product.
 - Those is no influence on its performance even if the hollow fiber is jumbled depending on the condition of use.

- ⚠Cautions:
- In connecting the tubes, make sure of the connecting direction as specified by the arrow signs on the main body. Failure to do this prevent the filter performance from being fulfilled.
 - Make sure to conduct flushing with the clean air inside the pipings prior to connecting. The leftovers of dust, rust or sealing tape can cause clogging.
 - Excessive vibration and/or shock can cause damage of the product. When putting the product into use in the place where vibration and shock are expected to be omnipresent, it is recommended to pretest the performance on the actual application machines and in the same environment.
 - Please do not disassemble to convert or changeover the original product. It can cause collecting dust or unnecessary leaking.
 - This product does not support replacement of the filter element.

Chart of Operating Temperature & Max. Operating Pressure





Common Safety Instructions for Controllers

□ Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

- △Warnings:
1. Each device has its control direction, so check it in the manual and by the mark on the device before use. Mistaking the control direction may cause injuries on the operator or damage to the equipment.
 2. Do not give tension, twist or bending to the controllers. Also, do not drop or give excessive shocks to them. Such careless handling can inflict damage to them.
 3. When the controller has a lock nut on it, tighten it by hand without using a tool. Tightening with a tool may damage the lock nut or the controller body. Also, the incomplete tightening may lead to a loose lock nut, which in turn may render the initial setting useless.
 4. Use clean air as the pressure source. Dust or sludge may upset the control setting.

- △Cautions:
1. The safety instruction of tube fitting part should be referred to "Common Safety Instructions for Quick-Fitting Joint".
 2. Notes on installation
 - (1) Tighten with a proper tool, using hexagonal or knurled part.
 - (2) In tightening the screw, use the tightening torque recommended in the following table. Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks. Use of a torque lower than the recommended level may cause loose screw and leakage.

Table. Recommended Tightening Torque

- Hexagonal part

Thread Type	Thread size	Tightening torque
Metric thread	M3×0.5	0.7N·m (0.52lbf-ft)
	M5×0.8	1 ~ 1.5N·m (0.74 ~ 1.11lbf-ft)
	M6×1	2 ~ 2.7N·m (1.48 ~ 1.99lbf-ft)
Taper pipe thread	R1/8	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)
	R1/4	12 ~ 14N·m (8.85 ~ 10.33lbf-ft)
	R3/8	22 ~ 24N·m (16.23 ~ 17.70lbf-ft)
	R1/2	28 ~ 30N·m (20.65 ~ 22.13lbf-ft)
Unified fine thread	No.10 ~ 32UNF	1.5 ~ 1.9N·m (1.11 ~ 1.40lbf-ft)
	1/16 ~ 28NPT	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)
National Pipe Thread Taper (American standard)	1/8 ~ 27NPT	7 ~ 9N·m (5.16 ~ 6.64lbf-ft)
	1/4 ~ 18NPT	12 ~ 14N·m (8.85 ~ 10.33lbf-ft)
	3/8 ~ 18NPT	22 ~ 24N·m (16.23 ~ 17.70lbf-ft)
	1/2 ~ 14NPT	28 ~ 30N·m (20.65 ~ 22.13lbf-ft)
Parallel pipe thread	G3/8	1/2 ~ 1 turn after hand-tightening
	G1/2	

- Knurled part

Thread Type	Thread size	Tightening torque
Metric thread	M5×0.8	1/6 turn after hand-tightening
	M6×1	
	M10×1	
Parallel pipe thread	G1/8	1/2 ~ 1 turn after hand-tightening
	G1/4	

3. Notes on removal

- (1) Loosen it with a proper tool, using the hexagonal or knurled part.
- (2) Remove sealant sticking to the thread on the mated equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.
4. The Fixed Orifice Type Joint and Constant Flow Speed Controller, which have an orifice, have variation in a flow characteristic. When you require a strict control of airflow, please consult with PISCO.
5. When the product itself generates heat by adiabatic compression, please control the operating temperature to be within the specification's range including such heat.



! Safety Instructions

- This Safety Instructions aim to prevent injuries to human bodies and damage to properties by requiring proper use of PISCO devices.

Also the relevant requirements of ISO 4414 and JIS B8370 must be observed.

ISO 4414: Pneumatic fluid power ... Recommendations for the application of equipment to transmission and control systems.

JIS B 8370: General standards for pneumatic systems

Safety instructions are classified into "Danger", "Warning" and "Caution", depending on the degree of danger or damage involved when the safety instructions are not complied with in handling the equipment.

△ Danger : Failure to heed the warning of apparent danger may result in death or serious injuries.

△ Warning : Failure to heed the warning of conditionally dangerous situations may result in death or serious injuries.

△ Caution : Failure to heed the warning of conditionally dangerous situations may result in minor or not too serious injuries or damage to properties.

△ Warning : 1. Make a selection of pneumatic equipment.

(1) Well knowledgeable and experienced persons such as a pneumatic system designer or who is in charge of deciding specification should select pneumatic equipment.

(2) The applicable conditions of the products in this catalogue are diverse. Therefore, judge the conformity of systems with required analysis or tests by system designers or persons who is in charge of deciding specifications. The guarantee of initial performance and safety of the system is on responsibility of the person who decides specifications. Hereafter, examine all the specification with updated products catalogues and technical documents in order to avoid malfunctions of equipment, and then develop systems.

2. Handle pneumatic equipment with enough knowledge and experience.

(1) Mishandling of compressed air is dangerous. Conduct assembly, operation and maintenance of devices with pneumatic equipment by persons with enough knowledge and experience.

3. Do not operate and remove the equipment until safety is confirmed.

(1) Conduct inspection and maintenance of equipment after confirming fail-proof measures of work pieces or runaway-proof device are properly working.

(2) When removing equipment, make sure that above safety measures are conducted. Then, stop air supply and electric source of equipment making sure the pressure inside the system is zero before removing equipment.

(3) When re-activate equipment, make sure safety measures against fly-out are taken and re-activate equipment with care.

* Safety Instructions are subject to change without advance notice.



Common Safety Instructions for Products Listed in This Manual

□ PISCO products are designed and manufactured for use with general industrial machinery and equipment. Therefore be sure to observe the following safety instructions:

△ Danger : 1. Do not use PISCO devices with the following equipment:

- (1) Equipment used for the sustenance or control of people's health or lives
- (2) Equipment used for the movement or transport of people
- (3) Equipment used specifically to ensure safety

△ Warning : 1. Avoid the following uses for PISCO devices:

- (1) Use under conditions not specified for the device
- (2) Use in any outdoor environment
- (3) Use in locations where the device is exposed to excessive vibration or shocks
- (4) Use in locations where the device is exposed to any corrosive gas, inflammable gas, chemicals, seawater, or vapor.

* Certain PISCO devices, however, can be used in environments as described above. Therefore check on the specifications for the use of individual devices.

- 2. Do not disassemble or remodel the PISCO devices in such a way as may affect the basic structure, performance or function of them.
- 3. Never touch the release ring of the Quick-Fitting Joint when there is pressure working on it. Touching may release the ring, which in turn may cause the tube to fall out.
- 4. Avoid too frequent switching of air pressure. Otherwise the device body may heat up to cause burns on you.
- 5. Do not allow tension, twist or bending forces to act on the joints. Undue forces may damage the joint body.
- 6. For applications in which the threaded side or the tube connection side is subject to vibration, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Blocks only. Swinging or rotation may damage the joint body.
- 7. For applications with hot water of 60°C (140°F) or above or thermal oil, use no other joints than Die Temperature Control Fitting, Tube Fitting Stainless SUS316, Tube Fitting Stainless SUS316 Compression Fitting, and All Brass Compression Fitting. Heat or hydrolysis may damage the joint body.
- 8. For applications in which the scattering of static electricity or charging must be prevented, use no other joints than EG Joints. Static electricity may cause system malfunction or trouble.
- 9. Never use joint other than Tube Fitting Spatter or Tube Fitting Brass where they are exposed to spatter. Otherwise can cause fire.
- 10. Carry out maintenance and checks of equipment only after turning power off, shutting fluid off and making certain that the pressure in the piping has dropped to zero. Please conduct maintenance after confirming following points.
 - (1) Make sure that maintenance is safe for all the systems involving PISCO products.
 - (2) When re-activate equipment after maintenance, make sure safety measures against fly-out are taken and re-activate equipment with care.
 - (3) Please secure space for maintenance when the circuit is designed.
- 11. When the fluid is admitted to the equipment and if there is a possibility to cause damage to it due to leakage, conduct safety measures such as protect cover beforehand.

△ Caution : 1. In installing the piping, be sure to remove dust or drainage from within the piping. Dust or drainage left unremoved may enter other equipment, thus causing troubles.

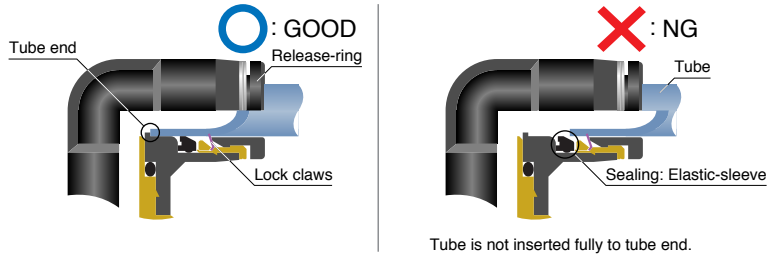
- 2. When using an ultrasoft tube to connect to a Quick-Fitting Joint, be sure to use an insert ring in the bore of the tube. Otherwise the tube may fall out to cause leakage.
- 3. When you use tubes of brands other than ours, be sure to confirm that the outside diameter of the tubes satisfies the tolerance specified Table 1.

Table 1. Tube O.D. Tolerance

mm size	Nylon tube	Urethane tube	inch size	Nylon tube	Urethane tube
ø1.8mm	—	±0.05mm	ø ¹ / ₈	±0.0039in.	±0.0059in.
ø3mm	—	±0.15mm	ø ⁵ / ₃₂	+0.0039in.	±0.0059in.
ø4mm	±0.1mm	±0.15mm	ø ³ / ₁₆	±0.0039in.	±0.0059in.
ø6mm	±0.1mm	±0.15mm	ø ¹ / ₄	±0.0039in.	±0.0059in.
ø8mm	±0.1mm	±0.15mm	ø ⁵ / ₁₆	+0.0039in.	±0.0059in.
ø10mm	±0.1mm	±0.15mm	ø ³ / ₈	±0.0039in.	±0.0059in.
ø12mm	±0.1mm	±0.15mm	ø ¹ / ₂	±0.0039in.	±0.0059in.
ø16mm	±0.1mm	±0.15mm	ø ⁵ / ₈	±0.0039in.	±0.0059in.

4. Cautions on the fitting of tube

- (1) Make certain that the end of the tube is cut at right angles, the tube surface is free from flaws, and the tube is not deformed into an ellipse.
- (2) When fitting a tube, insert the tube to the tube end completely as drawings shown below to prevent leakage.



- (3) On completion of fitting, make certain that the tube does not come out at your pulling.

5. Cautions on the release of tube

- (1) Before releasing the tube, make certain that the pressure inside the tube is zero.
- (2) Push the release ring fully inside and pull out the tube. Unless you push it completely in, the tube may not come out and scrapings of tube may be left inside the joint.

6. Cautions on the installation of joint body

- (1) When installing the joint body, tighten it with a proper tool, using the outside or inside hexagon.
- (2) In tightening the screw, use the tightening torque recommended in Table 3.
 - Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks.
 - Use of a torque lower than the recommended level may cause loose screw and leakage.
- (3) With the joint whose piping direction will not change after tightening, make adjustment within the recommended range of tightening torques.

Table 3. Tightening Torque, Sealock Color and Gasket Material

Thread type	Thread size	Tightening torque	Sealock color	Gasket material	
Metric thread	M3×0.5	0.7N·m (0.52lbf·ft)	n/a	SUS304, NBR	
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)			
	M6×1.0	2.0 ~ 2.7N·m (1.48 ~ 1.99lbf·ft)			
	Taper pipe thread	M3×0.5	0.5 ~ 0.6N·m (0.37 ~ 0.44lbf·ft)	n/a	POM (Polyacetal)
		M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)		
		M6×0.75	0.8 ~ 1.0N·m (0.59 ~ 0.74lbf·ft)		
Unified thread	M8×0.75	1.0 ~ 2.0N·m (0.74 ~ 1.48lbf·ft)	White	n/a	
	R1/8	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)			
	R1/4	12 ~ 14N·m (8.85 ~ 10.33lbf·ft)			
	R3/8	22 ~ 24N·m (16.23 ~ 17.70lbf·ft)			
National Pipe Thread Taper (American standard)	R1/2	28 ~ 30N·m (20.65 ~ 22.13lbf·ft)	Gray	n/a	
	No. 10-32UNF	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)			
	1/16-28NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)			
	1/8-27NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)			
	1/4-18NPT	12 ~ 14N·m (8.85 ~ 10.33lbf·ft)			
	3/8-18NPT	22 ~ 24N·m (16.23 ~ 17.70lbf·ft)			
	1/2-14NPT	28 ~ 30N·m (20.65 ~ 22.13lbf·ft)			

Recommended tightening torque for silencer

Thread Type	Thread Size	Tightening Torque
Metric thread	M5×0.8	1/6 turn after hand-tightening
	M6×1.0	
	M10×1.0	
Parallele pipe thread	G1/8	1/2 ~ 1 turn after hand-tightening
	G1/4	
	G3/8	
	G1/2	

7. Cautions on the removal of joint body

- (1) When removing the joint body, loosen it with a proper tool, using the outside or inside hexagon.
- (2) Remove sealant sticking to the thread on the mating equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.

8. Clean-room package option

* The product is washed by clean air after assembling in the normal assembly process as same condition as standard specification model. Then, it is packed in ISO class 6 clean-room.